

AUG 11 1988

Critical Item: Blower

Find Number: A107858

Criticality Category: 15

SAA No: 09GS05-003

System/Area: ECS/SLF/SLS

NASA  
Part No: 79K18191

PMN/ S70-0543/  
Name: Portable Purge Unit

Mfg/ Spencer/  
Part No: 40200HM00

Drawing/  
Sheet No: 79K06061/1

Function: Deliver conditioned air to Orbiter compartments.

Critical Failure Mode: Fail to operate. (Rotation of Fan)  
FM No. 09GS05-003.001

Failure Cause: Seizure of bearing, blower/motor structural failure.

Failure Effect: Loss of air flow causes loss of purge to Orbiter compartments. Loss of ability to monitor purge air for leaks. Possible loss of life or vehicle during a hazardous condition such as leakage of hazardous fluids or gases.

#### Acceptance Rationale

##### Design:

- o Blower volume capacity output is 6599 cfm, operating at approximately 75% (5000 cfm). Output pressure is 3.75 psig.
- o Fan-cooled totally enclosed motor.
- o Failure is detectable by open circuit breaker CB3.
- o Lubricated roller bearing - large grease reservoir.
- o Dynamic balanced.

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Blower A107258 (Continued)

Test:

- o The OMRSD, File VI will require that operation of the purge unit is verified prior to each use.
- o The purge unit is powered up and verified operational approximately three hours prior to Orbiter landing per OMI S0028 and S0026.
- o Electrical checks of the motor windings are performed quarterly per OMI No. V6C52.

Inspection:

- o The mechanical elements are inspected monthly per OMI V6C72 for:
  - loose or missing hardware
  - corrosion
  - abnormal noise

Failure History:

- o PRACA failure history indicates that fifteen problem reports were written against the component in the critical failure mode. Failures were attributed to the use of non-conforming grease. PMQMI was revised to prevent this from happening. In each case the blower was repaired or replaced. No failures were reported since 13 May 1988.
- o No GIDEP failure history identified.

Operational Use:

- o There is nothing that can be done immediately to mitigate the effect of the failure.
- o The purge unit is monitored for any indication of malfunction. If any anomalies are observed, appropriate steps are taken to repair or replace the item.